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APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
08/903,486	07/29/97	FORBES	L 303.326US1

MM92/0606  
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EXAMINER

MINTEL II  
ART UNIT PAPER NUMBER

2811

DATE MAILED: 06/06/00

This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

### OFFICE ACTION SUMMARY

- ☒ Responsive to communication(s) filed on April 21, 2000
- ☒ This action is FINAL.

- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213:

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

#### Disposition of Claims

- ☒ Claim(s) 1-15, 22-54 is/are pending in the application.
- ☐ Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- ☒ Claim(s) 1-15, 22-54 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement.

#### Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- ☒ The proposed drawing correction, filed on April 21, 2000 is ☒ approved ☐ disapproved.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. § 119

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been
- ☐ received.
- ☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

- ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e).

#### Attachment(s)

- ☐ Notice of Reference Cited, PTO-892
- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 16413
- ☐ Interview Summary, PTO-413
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Notice of Informal Patent Application, PTO-152

SN# 08/903486

--SEE OFFICE ACTION ON THE FOLLOWING PAGES--

BEST AVAILABLE COPY

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4-11, 14, 15, 22-26, 29-32, 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oyama (367) in view of the Admitted Prior Art, of record.

3. In re claim 1, lines 1-2, and 4, the English Abstract of Oyama recites a MOSFET with source/drains 6 and SiCgate 41. Fig. 1 of Oyama shows a conventional Si substrate 1 and lacks the underlying insulating portion of claim 1, line 3. However, Applicant at pages 1-3 of the specification teaches SOI structures. Therefore, in re claim 1, because of the Admitted Art, it would have been obvious to form the MOSFET of Oyama on an insulating substrate to obtain the well known advantages of SOI technology, such as electrical isolation.

4. In re claims 4, 5, 11, 14, Applicant's specification teaches CMOS structures. In re claims 15, 22, 24, 25, 26, 29, 31, 32, 35, it is well known in the art to use CMOS devices to make memory cells. In re the above claims, Oyama recites SiC in the Abstract, which is at least a disclosure concerning stoichiometric SiC.

5. Claims 2, 3, 12, 13, 27, 28, 33, 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oyama (367) in view of the Admitted Prior Art as applied to claims 1, 4-11, 14, 15, 22-26, 29-32, 35, 36 above, and further in view of Halvis and Chen, of record.

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6. Oyama is described above but does not disclose poly- or microcrystalline SiC in the English Abstract. Chen (766) at column 4, lines 5-20, teaches nanocrystalline SiC and Halvis at lines 1-4 of the Abstract teaches polycrystalline SiC. These references then teach that various forms of SiC exist. It would therefore have been obvious to use such materials as the SiC gate of Oyama as known art equivalent forms of SiC.

7. Claims 37-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa (367) in view of Harris (208), Lee (859) and Suehiro (410). Oyama is described above but lacks explicit doping of the SiC gate in the English Abstract. Harris at column 2, lines 40-42, teaches boron as the most interesting dopant for SiC. Suehiro at column 21, lines 35-50, teaches tailoring resistance by choosing the conductivity type of the dopants used to dope SiC and polycrystalline Si. Finally, Lee at column 3, lines 40-50, teaches lowering the resistance of SiC by doping. Therefore, because of Harris, Lee, and Suehiro, it would have been obvious to boron dope the SiC gate of Oyama to reduce resistance in regard to claim 37.

In re claim 38, Suehiro at column 13, lines 20-30, teaches the equivalence of a single-crystal Si substrate with an SOI substrate. In re claims 39-54, the above references teach various conductivity types.

8. The disclosure is objected to because of the following informalities: The specification contains grammatic or other errors. Examples are below. To be fully responsive to this action, Applicant must make a bona fide attempt to correct any others. Claim 37, line 5, "silicon carbide compound SiC" appears redundant because of "compound SiC". See also, claim 38, line 6,

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claim 41, line 5, claim 42, lines 6 and 8. Claim 38, line 8, is redundant with respect to claim 37, line 5.

Appropriate correction is required.

9. Applicant's arguments filed April 21, 2000 have been fully considered but they are not persuasive. Applicant in Paper No. 17 argues that Oyama lacks an insulating substrate or complementary MOSFET's and that the Admitted Prior Art is not a specific enough teaching to pertain to Oyama. The Examiner responds that SOI and CMOS structures are very well known in the art, of which judicial notice may be taken.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. Mintel whose telephone number is (703) 308-4916. The examiner can normally be reached on M-Th from 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas, can be reached on (703) 308-2772. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Mintel/dc  
June 1, 2000

*William Mintel*  
*William Mintel*  
*Primary Exmr.*  
*A.V. 2811*